

Notice of Allowability

Application No.

10/698,728

Examiner

Patrick M. Moore

Applicant(s)

SEIDI ET AL.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amended claims filed on 19 June 2006 & RCE filed on 21 August 2006.
2. ☒ The allowed claim(s) is/are 1,3-11 and 13-21.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material

5. ☐ Notice of Informal Patent Application

6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____

7. ☒ Examiner's Amendment/Comment

8. ☒ Examiner's Statement of Reasons for Allowance

9. ☐ Other _____

Reginald D. Bragdon
REGINALD BRAGDON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.
2. Authorization for this examiner's amendment was given in a telephone interview with **Arvin Park (Reg. # 41,241) on 14 September 2006.**
3. The application has been amended as follows:
 - a. **Claim 21.** (Currently amended) A computer system that facilitates accessing objects stored outside of main memory in an object-addressed memory hierarchy, comprising: a processor; a main memory; the object-addressed memory hierarchy; an object cache within the object-addressed memory hierarchy; a hardware translator that translates between object identifiers, used to address objects in the object cache of a central processing unit (CPU), and physical addresses, used to address objects in main memory; wherein the hardware translator is configured to receive a request to access an object after the request misses in the object cache of the CPU, wherein the request includes an object identifier for the object that is used to reference the object within the object-addressed memory hierarchy, and wherein the object table entry associates a given object identifier with a corresponding physical address if the object is in main memory and an external location if the object is not in main memory; a object table lookup mechanism with the hardware translator

configured to use the object identifier to retrieve an object table entry associated with the object; and an access mechanism configured to, examine a valid indicator within the object table entry, if the valid indicator indicates the object is located in main memory, to use a physical address in the object table entry to access the object in main memory, and if the valid indicator indicates that the object is not located in main memory, to relocate the object into memory from a location outside of memory, and to access the object in main memory.

Allowable Subject Matter

4. Claims 1, 3-11 & 13-21 are allowed.
5. The following is an examiner's statement of reasons for allowance:
 - a. The prior art does not teach or fairly suggest data accessing methods, apparatus nor computer system which: receive an object access request at a hardware translator, which then returns a physical address of an object located in main memory and an external location of an object not located in main memory. Furthermore, the combination of the hardware translator with physical address and external location is not suggested by the prior art indicated below, especially since such combination allows for association between an object identifier and it's referenced object possibly located in an external location.
 - b. The examiner's amendment, detailed above, has been added to remove possible differences in scope between independent **Claims 1 & 11** and **Claim 21**, as presented by Applicant in the Amendment filed on **19 June 2006**. As presented by Applicant, **Claim 21** did not limit the invention to a hardware translator, which

was the basis for Applicant's amendment to **Claims 1 & 11** and included remarks/arguments.

- c. Independent **Claims 1, 11 & 21** are distinguished over the closest Prior Art of Nguyen et al. (US Patent # 5,887,275), which discloses object identifier translation [**Figure 2 & Column 3, Lines 43-55**] and a valid indicator [**Column 6, Lines 16-28 & Column 7, Lines 32-35**], and Mattis et al. (US Patent # 6,128,623), which discloses an external object retrieval method [**Column 10, Lines 12-18**]. Although Nguyen and Mattis, in combination, do disclose some features of the Applicant's invention, Nguyen/Mattis do not disclose obtaining a receiving a request at a hardware translator for referencing an object using an object identifier, wherein the object identifier is associated with either a physical address or an external location of the object.
- d. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

- 6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick M. Moore whose telephone number is (571) 272-1239. The examiner can normally be reached on M-F 8:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabahn can be reached on (571) 272-4210. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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PMM

9/15/2006

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